

Environmental Community Letter

Lawrence Livermore National Laboratory

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LLNL OPERATIONS POSED NO THREAT TO PUBLIC OR ENVIRONMENT IN 1995

LLNL's Environmental Report for 1995, recently approved by the Department of Energy, demonstrates that Laboratory operations posed no threat to the public or the environment during 1995. The Report can be accessed on the Internet at the address <http://www.llnl.gov/saer>.

In 1995, the Laboratory's Environmental Protection Department sampled air, sewage effluent, ground water, surface water, soil, vegetation, and foodstuffs. It also measured environmental radiation. Over 18,700 environmental samples were taken and analyses were conducted for more than 248,000 analytes. Once samples were collected, they were analyzed for radioactive and nonradioactive substances using standard methods such as analytical procedures approved by the U.S. Environmental Protection Agency, special systems such as the continuous monitoring system for Livermore site sewage, or special analytical techniques designed to measure very low levels of radionuclides.

The analyses showed that the amount of radioactivity released from LLNL during 1995 was slightly less than in 1994 and was below the range of earlier years. Concentrations of all monitored radionuclides and beryllium were well below levels that endanger the environment or public health, according to current regulatory standards. As an example, measurements of the concentration of plutonium on air filter samples collected in the Livermore Valley showed a median value of only 0.01% of the federal Derived Concentration Guide.

In 1995, the Livermore site discharged approximately one million liters of waste water per day into Livermore's sewer system, comprising 4.9% of the total flow into that system. Samples of the discharged wastewater are regularly collected and analyzed to assure that LLNL's sewage effluent meets

the requirements of the permit granted by the City of Livermore. During the year, none of the releases exceeded the discharge limit set for radioactive material released to the sanitary sewer system, and concentrations of metals were also well below discharge limits.

Surface water samples taken at the Livermore site and in the Livermore Valley in 1995 showed traces of radiation that were less than 10% of the drinking water maximum contaminant level (MCL). Tritium values for surface and drinking water samples were less than 0.3% of the drinking water standard. Some wells at Site 300 showed tritium levels above the MCL for drinking water, while others sampled exceeded California drinking water standards for arsenic, selenium, nitrate, and trichlorethene, but none of these wells supply water for agriculture or for human or animal consumption. Measurements of samples taken from off-site wells showed that the contaminants of concern were far below drinking water MCLs: measurements of tritium and other radioactive materials showed values so low that they were equivalent to background.

In 1995, the radiological dose was assessed using an EPA-mandated computer model. The model was used to measure the maximum radiation that a member of the public could be exposed to at the Livermore site and Site 300. *The assessment showed that emissions from the sites were less than 0.5% of the EPA National Emission Standards for Hazardous Air Pollutants (NESHAPs).* That amounts to about 1/8000 of the dose received by that same member of the public from natural background radiation, not including medical or other man-made sources.

Efforts at waste reduction and pollution prevention showed many successes. Solid waste minimization resulted in reductions of 12.5% and 27.8%, respectively, in the amount of aggregate waste and hazardous waste generated, compared to 1994. The total potential waste diverted from landfills and recycled off site increased 32% over the previous year as a result of recycling programs focused on paper, batteries, ferrous material, tires, and other materials.



The Laboratory also significantly reduced its use of hazardous organic solvents. The LLNL Chemical Exchange Warehouse, which receives, temporarily stores, tracks, and makes excess chemicals available for reuse, won a national award for pollution prevention from the Department of Energy.

LLNL continues to perform all activities necessary to meet clean air and clean water requirements. In 1995, the Bay Area Air Quality Management District issued or renewed 178 permits to operate the Livermore site. The San Joaquin Valley Unified Air Pollution Control District issued or renewed 41 permits to operate Site 300. Notification of environmental occurrences at the Laboratory is required under a number of environmental laws, regulations, and DOE orders. LLNL responded to 14 incidents that required federal and/or state agency notification during 1995. None of these caused adverse impact to human health or the environment.

Hundreds of millions of liters of ground water were processed in LLNL's treatment facilities in 1995, removing tens of kilograms of volatile organic compounds and lesser amounts of dissolved fuel hydrocarbons. These efforts at control and remediation have stopped the westward migration of contaminants at the Livermore site and significantly decreased the level of contaminants off site.

In summary, the results of the Laboratory's environmental programs in 1995 demonstrate that the Laboratory's impact on the environment remains minimal and poses no threat to the public or the environment.

NEW STRATEGY FOR GROUND WATER TREATMENT

In a giant step forward from traditional pump-and-treat ground water remediation, environmental scientists at LLNL have developed automated portable treatment units (PTUs) that promise, in concert with innovative mapping and modeling techniques, to save millions of dollars in cleanup costs.

These PTUs can serve as a substitute for stationary treatment facilities, which usually cost twice as much or more as the portable units due to the extensive system of pipes needed by fixed installations.

The new PTUs allow Livermore to attack specific areas of contamination as cleanup proceeds, since the PTUs can be quickly moved from well to well to remove contaminants efficiently and effectively.

This new approach to ground water cleanup is called "The Adaptive Remediation Strategy" and was developed by the LLNL Environmental Restoration Division, the organization responsible for cleaning up the Livermore site and Site 300.

LAB WINS NATIONAL POLLUTION PREVENTION AWARD

The U.S. Environmental Protection Agency has awarded its 1996 National Storm Water Control Program Excellence Award to Lawrence Livermore National Laboratory. The Award recognized the Laboratory's program to curb water pollution through improved storm water control. There were more than 20 contenders for the Award.

The Lab's storm water runoff flows into Arroyo Los Positas and Arroyo Seco, ending up in San Francisco Bay. To win the Award, LLNL inspected its storm water drainage system in 600 buildings and trailers on the main site and 100 buildings at Site 300. The Lab also created and managed a database for 6,300 connections in 35 miles of underground storm drain conduits and 10 miles of open channels. A joint team from the Environmental Protection Department and Plant Engineering tested more than 26,000 drain lines to assure appropriate connection to storm drainage systems. Increased employee awareness was also critical to assuring cleaner storm water discharges.

STREAMLINED PROCEDURES TO SPEED SITE 300 CLEANUP

Leaders of the Laboratory's environmental restoration effort have worked with the U.S. Environmental Protection Agency, California Regional Water Quality Control Board and Department of Toxic Substances Control to reduce the paperwork necessary to begin Site 300 cleanup work.

The new process will save taxpayers as much as \$4 million over three years, expedite cleanup of the site, and bring

the entire cleanup process to closure many years sooner by consolidating many of the documents required in the cumbersome Superfund process.

While paperwork is reduced by eliminating redundant and unnecessary documents, environmental standards for the cleanup remain unchanged.

Under the streamlined process, an engineering evaluation/cost analysis (EE/CA) incorporates the most important elements of the Superfund process. Public comment is included earlier in the process and documents are easier to understand.

OTHER ENVIRONMENTAL NEWS AND NOTES

The Department of Energy has canceled funding of the Mixed Waste Management Facility (MWMF). This means it will no longer be built at LLNL as part of the Decontamination and Waste Treatment Facility (DWTF). The DWTF in turn has a reduced scope of construction since it is no longer required to house the MWMF. The MWMF was to be a test bed for mixed waste treatment technologies that were alternatives to incineration. One of those technologies, molten salt oxidation, remains at LLNL as an expedited technology demonstration project and is expected to be completed by the end of the 1998 fiscal year...The Site 300 Environmental Restoration Group is moving along the speedier EE/CA path and will present an alternative proposal for capping Pit 6, a landfill at Site 300, at a public workshop to be held at 7:00 PM January 15, 1997 at the Tracy Inn in Tracy, California. The EE/CA document should be in the repositories by December 15, 1996...Both the Main Site and Site 300 Restoration Groups now interact with the community group, TriValley CARE. The group has now received Technical Assistance Grants from the Environmental Protection Agency for both LLNL Superfund sites. The grants are to be used for employing scientific assistance to help the group understand the cleanup process better and to communicate information about restoration activities to the public.

As usual, should you have any questions or comments concerning environmental activities at Lawrence Livermore National Laboratory, please call me at (510) 424-4026, apply your Internet skills by sending me a message at heffner1@llnl.gov, or send written comments to me at P.O. Box 808, L-404, Lawrence Livermore National Laboratory, Livermore, CA 94551. (You may use the back page of this letter if you like.)



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